

Abstract

Process for producing an etching mask on a microstructure, in particular a semiconductor structure with trench capacitors, and corresponding use of the etching mask

The present invention provides a process for producing an etching mask on a microstructure, in particular a semiconductor structure with one or more trench capacitors (5), which includes the following steps: providing a lower first, a middle second and an upper third hard-mask layer (60; 70; 80) on a surface of the microstructure, the third hard-mask layer (80) being significantly thinner than the first and second hard-mask layers (60; 70); providing a photoresist mask (100) above the third hard-mask layer (80); patterning the third hard-mask layer (80) by etching chemistry using the photoresist mask (100); patterning the second hard-mask layer (70) by etching chemistry using the patterned third hard-mask layer (80), with the photoresist mask (100) being removed at the same time; patterning the first hard-mask layer (60) by etching chemistry using the patterned second hard-mask layer (70), with the third hard-mask layer (80) being removed at the same time; and removing the patterned second hard-mask layer (70).

(Fig. 1c)